

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 0 909 056 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
22.09.1999 Bulletin 1999/38

(51) Int. Cl.⁶: H04L 12/24, H04L 12/26

(43) Date of publication A2:
14.04.1999 Bulletin 1999/15

(21) Application number: 98108915.4

(22) Date of filing: 15.05.1998

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 08.10.1997 US 947219

(71) Applicant:
Hewlett-Packard Company
Palo Alto, California 94304 (US)

(72) Inventors:
• Walker, Anthony
Fort Collins, CO 80525 (US)
• Pulsipher, Eric A.
Fort Collins, CO 80525 (US)
• Smith, Darren D.
Fort Collins, CO 80526 (US)

(74) Representative:
Schoppe, Fritz, Dipl.-Ing.
Schoppe, Zimmermann & Stöckeler
Patentanwälte
Postfach 71 08 67
81458 München (DE)

(54) Network management event correlation in environments containing inoperative network elements

(57) A network monitor (510) for distinguishing between broken and inaccessible network elements (124, 128-136). The network monitor includes one or more computer readable storage mediums, and computer readable program code stored in the one or more computer readable storage mediums. The computer readable program code includes code for discovering the topology of a plurality of network elements, code for periodically polling a plurality of network interfaces associated with the plurality of network elements, code for computing or validating a criticalRoute attribute for each of the plurality of network interfaces, and code for analyzing a status of network interfaces identified by the criticalRoute attribute of an interface in question (11Q) which is not responding to a poll or ping. The computer readable program code may also include code for establishing a slowPingList and placing in-memory representations of broken or failed network interfaces thereon, thereby reducing the amount of information which is presented to a network administrator from inaccessible elements not responding to a network interface poll. A means for correlating and/or suppressing events (502) in response to the determination of whether a network interface is failed or broken is also provided. Information which is not critical to a network administrator may be suppressed, and then viewed in a "drill down"

(522, 722, 822) of a particular network interface.

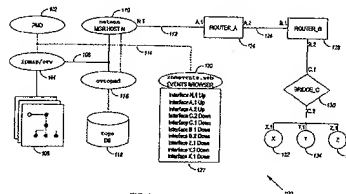


FIG. 1

EP 0 909 056 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 10 8915

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 5 436 909 A (DEV ROGER H ET AL) 25 July 1995 (1995-07-25) * abstract * * figures 3,5,6 * * column 2, line 9-35 * * column 10, line 39 - column 12, line 41 * * claims 1-5 *	1-10	H04L12/24 H04L12/26
A	US 4 825 206 A (WEINGARTEN ROBERT A ET AL) 25 April 1989 (1989-04-25) * abstract * * figures 9,10 * * column 2, line 54 - column 2, line 65 * * column 3, line 34-45 * * column 6, line 47 - column 7, line 8 * * claim 1 *	1-4,6-8,10	
A	HAJELA S: "HP OEMF: ALARM MANAGEMENT IN TELECOMMUNICATION NETWORKS" HEWLETT-PACKARD JOURNAL, vol. 47, no. 5, 1 October 1996 (1996-10-01), pages 22-30, XP000631663 * the whole document *	1-4,6-8,10	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H04L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 July 1999	Examiner Cichra, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date O : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 10 8915

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on:
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-07-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5436909 A	25-07-1995	AT 154850 T	15-07-1997
		AU 681972 B	11-09-1997
		AU 2722595 A	21-09-1995
		AU 682272 B	25-09-1997
		AU 685335 B	15-01-1998
		AU 4063295 A	04-04-1996
		AU 659101 B	11-05-1995
		AU 8620491 A	15-04-1992
		DE 69126666 0	31-07-1997
		DE 69126666 T	12-02-1998
		EP 0549677 A	07-07-1993
		EP 0737920 A	16-10-1996
		EP 0737921 A	16-10-1996
		JP 6501118 T	27-01-1994
		WO 9205485 A	02-04-1992
		US 5295244 A	15-03-1994
		US 5504921 A	02-04-1996
		US 5559955 A	24-09-1996
		US 5751933 A	12-05-1998
		US 5727157 A	10-03-1998
		US 5261044 A	09-11-1993
		US 5812750 A	22-09-1998
US 4825206 A	25-04-1989	DE 3687400 A	11-02-1993
		EP 0221360 A	13-05-1987
		JP 1763603 C	28-05-1993
		JP 4050780 B	17-08-1992
		JP 62109451 A	20-05-1987

EPO FORM 1004/89

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82